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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,290	06/14/2005	Thomas L. Haschen	4845-0101PUS2	3643
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BIRCH STEWART KOLASCH & BIRCH			MAHAFKEY, KELLY J	
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FALLS CHURCH, VA 22040-0747			1761	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/530,290	Applicant(s) HASCHEN, THOMAS L.	
	Examiner Kelly Mahafkey	Art Unit 1761	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 84-122 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 84-122 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 84-122 are pending.

Amendments made 10/2/06 have been entered.

Claim Rejections - 35 USC § 112 1st Paragraph

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 84-122 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 84, 103, 105, 109, 112, 114, 115, 119-121 recite "over" and "greater than" certain percentages, thus indicating the end of the range as up to 100%. The specification discloses up to about 54% crude protein, up to about 2% methionine, and up to about 5% lysine; there was no support for ranges of up to 100% in the specification at the time the application was filed.

Claims 96, 106, 110, 116, and 122 are further rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. As stated in applicant's arguments and amendments filed October 2, 2006, the claims recite, "the bypass protein level *of the end product* that is over 50% and up to about 83% of the crude protein *is increased*", however, there is no support in the specification, as originally filed, for the increase of the nutritional components *of the end product*.

Claim 98 is further rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claim 84, from which claim 98 depends upon, recites, "adjusting the *temperature* and/or moisture content *of the enhanced nutrient value by-product-nutrient source mixture...*" Claim 98 recites, "the temperature is adjusted over a range from about 350 degrees Fahrenheit⁴⁰ about 500 degrees Fahrenheit." The specification, paragraph 0009 states "the systems and methods of this

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invention dry the resultant product/moisture at a dryer temperature of from between about 200F to about 100F... and the *temperature of the mixture at the end of drying is between 180F to about 250F.*" Thus, there is no support for the end product temperature as heated to a temperature range of 350-500F.

Claim Rejections - 35 USC § 112 2nd Paragraph

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 84-122 are further rejected for reciting a relative term. The term "an empirical relationship" in claims 84, 86, 103, 105, 109, 112, 114, 115, and 119-121 is a relative term that renders the claims indefinite. The term "an empirical relationship" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is noted that the specification provides a formula for use in the claimed invention; however, the formula is never referred to as an empirical relationship. Further more the claim recites "an empirical relationship" not "the empirical relationship".

Claims 84-122 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 86 is rejected for the recitation of relative terms. The term "temperature" in the empirical formula of claim 86 is a relative term that renders the claim indefinite. The term is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "temperature" is a relative term, because the units of temperature have not been clearly identified.

Claims 87, 89, and 90 are indefinite because they recite, "RUP is increased in a range from about 27% to about 83%". It is unclear to the examiner as to what RUP source feed is increased and to the initial amount of RUP that is increased.

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Furthermore it is noted that some claims recite that the nutritional content of the final product is increased while other claims recited that the nutritional content of the original feed product is increased. This difference draws further confusion to the claims and what product they are referring to.

Claims 109-111 and 119-122 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a system for predictably enhancing nutrient value, a system for determining means, a system for mixing, and a system adjusting means. The claims recite a system, yet claim method steps with no structural elements to define the system. It is unclear in what statutory class of inventions this falls.

Response to Arguments for 35 USC § 112 Claim Rejections

Applicant's arguments filed October 2, 2006, regarding the 112 rejections have been fully considered but they are not persuasive.

Regarding the 112 rejections of claims 84, 103, 105, 109, 112, 114, 115, 119-121, applicant argues that an upper range does not need ^{to be} recited in the claims. Examiner ^{agrees} ~~agrees~~ that if applicant had support for "over" or "greater than" or up to a 100% of the claimed ranges, an upper limit would not be necessary in the claim language, however, applicant does not have support for such phrases or ranges, and thus the claims are not supported by the specification as originally filed. *It is noted that applicant corrected the 112 for the upper limit percentage for the UIP/RUP, but did not correct the other percentages recited (crude protein, methionine, lysine).*

Regarding the 112 rejections of claims 87, 96, 106, 110, 116, and 122, applicant argues that there is basis for the claims in the specification, specifically the specification provides *examples* of an RUP/IUP feed source as increased, as well as the amount of RUP/IUP increased. However, applicant is reminded that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims (*In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993)), and

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thus, it remains unclear as to what product (i.e. the feed before or after processing) the RUP/IUP is increased in and as to what the corresponding RUP/IUP value is that is claimed to increase.

Regarding the 112 rejections of claims 109-111 and 119-122, applicant argues that claims 109-111 and 119-122 do include essential elements, such as apparatus. However, it appears that the apparatus applicant refers to are "systems" which are not necessarily apparatus. Furthermore, it is unclear if the "systems" are apparatus or even if they include any apparatus within them. It remains unclear as to what apparatus are indicated in the claimed "system" and to how those apparatus relate.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 84-122 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heitritter et al. (US 5824355) in view of Schingoethe (Feed Wet Distillers Grains to Dairy Cattle, May 2001).

Heitritter et al. (Heitritter) teach a method of enhancing the nutrient value of feed or feed supplement for lactating ruminant animals comprising:

- Determining the desirable levels of crude protein, UIP/RUP, amino acids and post ruminal digestibility in an end product;
- Creating a product base composed of an enhanced nutrient source, including corn and/or soybean meal;
- Adjusting the temperature and/or the moisture content of the base composition to a temperature between 150-220F (i.e. including 208-210F, 211-220F, 180-220F, 218F, and a temperature at which proteins are caused to denature)

Heitritter teaches that the final product has the following characteristics:

- Crude protein content of 47.2% (i.e. over about 30%, about 54%, and within the range of 30-50%);

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- UIP/RUP content of 69.9% of the crude protein (i.e. over 50%, and in the range of 63-83%);
- Amino acid levels 3.8% lysine (i.e. greater than 2% lysine) and 12.8% methionine (i.e. greater than 1% methionine); and
- Post ruminal digestibility of the UIP/RUP of 60.7% (i.e. over 60%).
- Moisture content between 12-16% (i.e. including within the range 0-14%)

Regarding claims 109 and 119-121, Heitritter further teaches of a system and system elements for the method steps as outlined above. Refer specifically to Abstract, Column 1 lines 5-23, Column 2 lines 50-67, Column 3 lines 34 and 45-52, Column 4 lines 37-45 and 52-56, Column 5 lines 5-10, and Examples 1-5.

Heitritter, however, is silent to feed composition composed of a base that includes wet end fermenters grain byproducts, to the UIP pepsin digestibility of the final product, to the additional enhancement of the final feed composition, to heating the feed composition to a temperature of 350-500F, and to the an empirical formula as describing the method of enhancing the feed composition.

Regarding the feed composition composed of a base that includes wet end fermenters grain byproducts Heitritter teaches of a protein enhanced ruminant feed for lactating animals, which includes soybean and/or corn meal (Column 8 lines 48-55). Schingoethe teaches that the inclusion of wet end fermenter's grain, in feed for lactating cattle, has been known for several years. Schingoethe teaches that corn distiller's grain is a good quality protein source. Schingoethe teaches animal performance is better when cattle are feed wet corn distiller's grain as opposed to dry corn distiller's grain. Schingoethe teaches that corn gluten meal (a form of corn meal) is a very good protein supplement, but is best when fed in combination with other protein supplements. Refer specifically to Page 1 paragraph 1, page 3 paragraph 3, page 4 paragraph 1, and Page 5 paragraph 3. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include wet end fermenter's grain in the corn and/or soybean meal as taught in the composition of Heitritter. One of ordinary skill in the art at the time the invention was made would have been motivated to include a combination of

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wet end corn distiller's grain and soybean/corn meal as the composition of the feed material as taught by Heitritter in order to produce an optimal feed composition for animals, such as lactating cattle. One would have been further motivated to chose a specific ratio of wet end corn distiller's grain to soybean and/or corn meal depending of the specific concentration of protein desired in the feed composition before treatment.

Regarding the additional enhancement of the final feed composition Heitritter teaches of a product with increased RUP, methionine, and lysine within the ranges claimed by applicant. Heitritter, however, does not disclose of retreating the feed product to further raise the RUP, methionine, and lysine levels of the final product. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an increased amount of RUP, methionine, and lysine if it was desired to feed the animal a smaller amount of feed and obtain the same positive results from the feed (i.e. the concentration of nutrients within the feed would need to be greater if a smaller amount of feed was to be feed to the animal and yield the same positive results). Furthermore, it is noted that it would have been obvious to one of ordinary skill in the art, at the time the invention was made to modify the invention as taught by Heitritter to include a feed with a specified value of CP, RUP, RUP pepsin digestibility, methionine, and lysine depending on the specific animal being ^{fed} feed and the stage at which the animal's life was at (i.e. adolescence, adulthood, pregnancy, milk production, ect).

Regarding heating the feed product to a temperature of 350-500F, Heitritter teaches that the feed product can be formed by heating from 150-220F or at those temperature ranges designed to prevent overcooking and/or burning of the moist meal feed (Column 4 lines 36-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include cooking at a temperature which prevented overcooking and/or burning of the moist meal feed while being most efficient for the heating element utilized.

Regarding an empirical formula as describing the method of enhancing the feed product as taught by Hietritter, Hietritter teaches of two specific points (the RUP/IUP levels and coordinating end product temperatures), which an empirical formula that

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relates the UIP and end product temperatures can be derived to alternatively explain the method of increasing the nutrient value in the feed product as taught by Hietritter. Thus, Hietritter teaches of an empirical formula that relates the UIP and end product temperatures to describe the method of increasing the nutrient value in the feed product. See response to arguments below for a more detailed explanation.

Specifically regarding the empirical formula of claim 86, applicant does not provide units of measure for the formula claimed. However, since the applicant and the reference both teach of reference points within the claimed ranges, one of ordinary skill in the art would expect the reference and the claimed invention to produce the same product through the same method, absent any clear and convincing arguments to the contrary.

Response to Arguments

Applicant's arguments with respect to claims 84-122 regarding the 103 rejection over Hietritter in view of Smith have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments, specifically in regards to the Hietritter reference, filed October 2, 2006 considered but they are not persuasive (Roman Numeral I of applicant's response).

Applicant argues that Hietritter does not teach of a method of predictably enhancing feed products. It is noted that "predictably" is defined as "to know in advance". Hietritter teaches of a method to enhance the nutrient value of feed; the method as taught by Hietritter is a method, which is known in advance, to enhance the nutrient value of feed, thus Hietritter teaches of a method to predictably enhance the nutrient value of feed products (Hietritter Column 2 lines 50-60 and Column 9 lines 15-53).

Applicant argues, page 22, paragraph 2, of the response, that the reference does not teach of steps (1) and (3), however applicant does not identify a step (3) to which they are referring. Regarding step (1), or the determination of specific desirable nutrient values of an end product, Hietritter teaches of increasing the milk production in cattle, as a direct result of feeding the cattle with nutrient enhanced feed. The increased milk

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production is a result of the disclosed method of enhancing the nutrient value of feed to specific values which provide for the increased milk production in the cattle. Refer specifically to Hietritter Column 2 lines 50-60 and Column 9 lines 15-53.

Applicant argues that ~~the~~ Hietritter does not teach of a formula, specifically an empirical formula for adjusting the level of nutrients within the feed product. Applicant is referred to the following example:

(A) A line is drawn according to the formula $y_s = 2_{s/m} (x_m) + 3_s$. Y ranges from 3-5secs. X ranges from 0-1m.

(B) A line is drawn. Points (x, y) on the line include (0,3) and (1,5). Using the given information (set of points), the formula $y_s = 2_{s/m} (x_m) + 3_s$ can be derived. Thus, the empirical formula, as given in disclosure A, is an alternative way of verbally describing the method of drawing the line as given in disclosure B. Although the descriptions of drawing the lines are verbal alternatives, the method of drawing the lines is inherently the same. Applicant claims a formula for enhancing the method of a feed source ($RUP/IUP = T * 0.819 - 107.644$), and specific points (RUP/IUP levels and temperatures) within that formula. Hietritter teaches of the same specific points, the RUP/IUP levels and temperatures, as applicant claims. Thus, as in the example above, an empirical formula can be derived to alternatively explain the method of increasing the nutrient value in the feed product as taught by Hietritter. Specifically regarding claim 86, applicant does not provide units of measure for the formula claimed. However, since the applicant and the reference both teach of reference points within the claimed ranges, one of ordinary skill in the art would expect the reference and the claimed invention to produce the same product through the same method, absent any clear and convincing arguments to the contrary.

Applicant argues that Hietritter does not teach the addition of a nutrient value product to a source mixture. Applicant is referred to the rejection above.

Conclusion


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly Mahafkey whose telephone number is (571) 272-2739. The examiner can normally be reached on Monday through Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kelly Mahafkey
Examiner
Art Unit 1761


KEITH HENDRICKS
PRIMARY EXAMINER